

Appl. No. 09/620253
Amendment under 37 CFR 1.116 Expedited Procedure
Examining Group 2125 dated November 17, 2005

PATENT

Listing of Claims:

1. (Previously Presented) A method for facilitating mass customization of an object, the method comprising:

generating a template representing data common to the object;
generating specific data to customize the object in conjunction with the template, wherein the specific data comprises at least one tool path; and
directing at least one tool along the at least one tool path to fabricate a customized version of the object.

Claim 2. (Cancelled).

3. (Previously Presented) The method of 1, wherein the tool path is represented as a spline.

4. (Previously Presented) The method of claim 1, wherein the object has an ideal model surface, wherein generating the specific data comprises creating an idealized tool path from the ideal model surface.

5. (Previously Presented) The method of claim 4, further comprising generating a mathematically smooth 3D spline using the idealized tool path.

6. (Previously Presented) The method of claim 5, further comprising generating surface normals from the ideal model surface at points distributed around the idealized tool path.

7. (Previously Presented) The method of claim 6, further comprising displacing each surface normal from its end to a nearest point on the smooth 3D spline.

8. (Previously Presented) The method of claim 7, further comprising creating a spline connecting each unattached end of each surface normal.

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9. (Original) The method of claim 8, wherein the ends are attached sequentially in a loop.
10. (Previously Presented) The method of claim 1, wherein directing the tool comprises using a source spline to define motion of the tool by defining tool orientation vector.
11. (Previously Presented) The method of claim 10, further comprising adjusting the source spline.
12. (Previously Presented) The method of claim 11, wherein the source spline is adjusted by moderately elevating or lowering an angle of a surface normal.
13. (Previously Presented) A method for fabricating a customized object, the method comprising:
receiving a digital representation of a target path;
generating a mathematically smoothed version of the target path;
applying the smoothed target path to generate a secondary target path; and
generating a streamlined tool path, based on the secondary target path; and
directing a tool along the tool path to fabricate the customized object.
14. (Previously Presented) The method of claim 13, wherein the target path is represented as a spline.
15. (Previously Presented) The method of claim 13, wherein the object has an ideal model surface, further comprising creating an idealized tool path from the ideal model surface.
16. (Previously Presented) The method of claim 15, further comprising generating a mathematically smooth 3D spline using the idealized tool path.

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17. (Previously Presented) The method of claim 16, further comprising generating surface normals from the ideal model surface at points distributed around the idealized tool path.

18. (Previously Presented) The method of claim 17, further comprising displacing each surface normal from its end to a nearest point on the smooth 3D spline.

19. (Previously Presented) The method of claim 18, further comprising creating a spline that connects each unattached end of each surface normal and wherein the ends are attached sequentially in a loop.

20. (Previously Presented) The method of claim 13, wherein directing the tool along the tool path comprises using a source spline to define motion of the tool by defining tool orientation vectors.

21. (Previously Presented) The method of claim 20, further comprising adjusting the source spline moderately elevating or lowering an angle of a surface normal.